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REVIEW ARTICLE

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A Coverage and Latency Aware Route Recovery from multiple Node failure in Mobile Sensor Network

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Abstract: In wireless sensor network, sensor and actor are linked by wireless medium in distributed network to perform actuation task. sensor collect information and actor response to it depend on their surroundings. Failure of an actor partition the network and lose connectivity and formed different block To overcome this failure we used here least disruptive topology repair algorithm to relocate node and path between nodes is not extended. In this paper we propose actor placement mechanism that consider both delay requirement and coverage of area. Each actor reposition itself to new position and reduced latency. Here we also use DARA and PDARA to maintain list of their multi hop neighbour and determine their scope. Ledir don't require additional pre failure communication overhead.

Keywords: Least Disruptive topology , inter-actor data, WSN, topology management, DARA

I. INTRODUCTION

A wireless sensor network is a network consisting of spatially distributed autonomous devices using sensors to monitor physical or environmental conditions. A wireless sensor network system provide connectivity between node behind the wired and their surrounding node. To perform different type of task in distributed network sensor and actors are linked and group. A failure of an actor may cause the network to partition into different block.

When a node fails, its neighbors node will individually consult their possibly incomplete routing table to decide on the appropriate course of actions and define their role in the recovery if any. If the failed node is critical to the network connectivity, i.e., a node whose failure causes the network to partition into disjoint blocks, the neighbor that belongs to the smallest block reacts. The performance of LeDiR is validated both analytically and through simulation. The simulation results demonstrate that LeDiR outperforms existing schemes in terms of communication and relocation overhead.

The connectivity restoration problem subject to path length constraints. Basically, in some applications, such as combat robotic networks and search-and-rescue operation, timely coordination among the actors is required, and extending the shortest path between two actors as a side effect of the recovery process would not be acceptable. For example, interaction among actors during a combat operation would require timeliness to accurately track and attack a fast moving target. A novel Least-Disruptive topology Repair (LeDiR) algorithm is proposed. LeDiR relies on the local view of a node about the network to relocate the least number of nodes and ensure that no path between any pair of affected nodes is extended relative to its prefailure status. LeDiR is a localized and distributed algorithm that leverages.

Methodology used in this is ….

A. Failure Detection

These will send hello messages to their neighbors to ensure that they are functional, and also report changes to the one-hop neighbors. Missing messages or no acknowledgement can be used to detect the failure of these. Once a failure is detected in the neighborhood, the one-hop neighbors of the failed they would determine the impact, i.e., whether the failed node is critical to network connectivity. This can be done using depth-first search algorithm .

B. Block Identification

The smallest block is the one with the least number of nodes and would be identified by finding the reachable set of nodes for every direct neighbor of the failed node and then picking the set with the minimum number of nodes Since a critical node will be on the shortest path of two nodes in separate blocks, the set of reachable nodes can be identified through the use of the SRT after excluding the failed node. In other words, two nodes will be connected only if they are in the same block. LeDiR limits the relocation to nodes in the smallest disjoint block to reduce the recovery overhead.

C. Replacing faulty node

If node is the neighbor of the failed node that belongs to the smallest block, then that node is considered the to replace the faulty node. Since node this node is considered the gateway node of the block to the failed critical node we refer to it as "parent." A node is a "child" if it is two hops away from the failed node, "grandchild" if three hops away from the failed node, and so on.

II. LITERATURE REVIEW

Di Tang etal [5], proposed a approach for CASER in which Lifetime optimization and security are two design issues for multi-hop wireless sensor networks (WSNs) with non-replenish able energy resources. In CASER we first propose a novel secure and efficient Cost-Aware secure Routing protocol to address these conflict issues through two adjustable parameters: energy balance control (EBC) and probabilistic-based random walking. Then discover that the energy consumption is severely disproportional to the uniform energy deployment for the given network topology, which greatly reduces the lifetime of the sensor networks.

S.satish Etal [6], proposed and start third Millennium Wireless Sensor Networks (WSNs) generated interest from industrial and research perspectives. Their interest are applications in remote and hard areas in which human intervention is risky or impractical. In WSNs, it is necessary to maintaining the internodes interaction and stalwartly connected network topology at all time. A breakdown of an actor-node may cause the network to partition into disjoint blocks and changes the routing path. In wireless sensor actor network, a number of schemes have been proposed for restoring the network connectivity. This survey analyse the node recovery from a failure in Wireless Sensor Networks. In wireless sensor network, node recovery and node restoration is an active area for research. In this method we classify the node recovery process into two broad categories

G. Sumalatha Etal[7] proposed a review on Failure Node Recovery in Wireless Sensor Networks in which sensors probe their surroundings and forward their data to actor nodes. Actors collect sensor data and perform certain tasks in response to various events. Since actors operate on harsh environment, they may easily get damaged or failed. Failed actor nodes may partition the network into disjoint subsets. In order to re-establish connectivity nodes may be relocated to new positions. This technique focus review of three (LeDir, RIM, DARA) node recovery algorithms, and their performance has been analyzed in terms network overhead and path length validation metrics.

W.Youssef Etal[4], proposed an Intelligent safety aware gateway relocation scheme for wireless sensor networks Recently, wireless sensor networks (WSN) have received enormous attentions due to their potential use in many applications. They can be used to enrich our understanding of natural events, such as earthquakes and volcanoes, and to increase the performance of system.

III. PRAPOSED WORK

From the literature survey we studied that the existing system have some problem like partition of network and lose the connectivity goal. to overcome this problem we used LeDir algorithm which is based on local view of node. For this we have to select path, topology and routing protocol.

A. Path Selection

- Minimum hop and shortest-path routing.
- Dijkstra and Bellman-Ford algorithms.

B. Topology Change

- Using beacons to detect topology changes.
- Propagating topology or path information.

C. Routing Protocol

- Link state open shortest path first
- Distance Vector: Routing Information protocol.

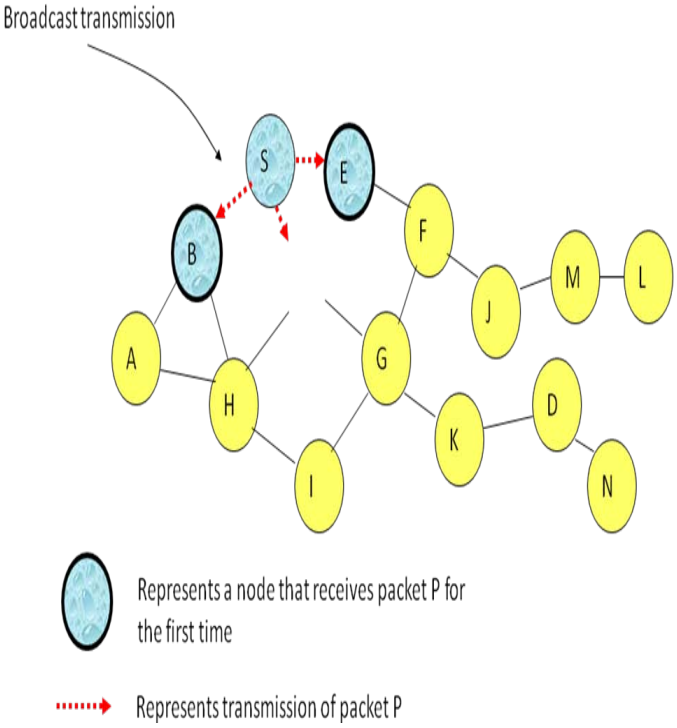

Figure 1. Sending and receiving process

Sender S broadcasts data packet P to all its neighbors Each node receiving P forwards P to its neighbors Sequence numbers used to avoid the possibility of forwarding the same packet more than once Packet P reaches destination D provided that D is reachable from sender node D does not forward packet.

Figure 2 shows the restore connectivity in which Black Node shows participation in network and gray node shows motivated node .

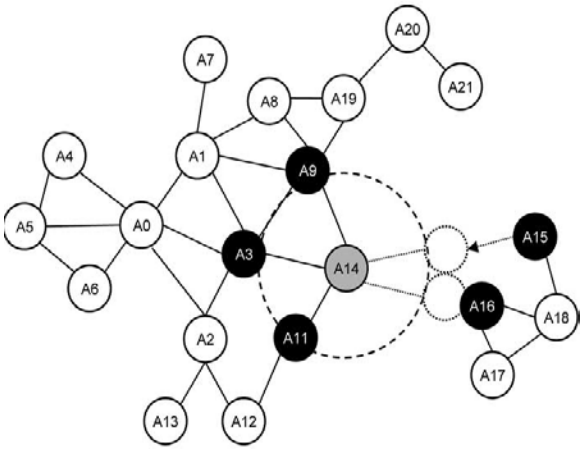

Figure 2. Restore Connectivity

When a failed nodes disconnect network into partitions, the neighbor of the failed nodes will take the lead and move toward the location of failed nodes in the partition

follow through in the same direction headed by the leader node and maintain their current link. Cascaded relocation takes less number of nodes movements compared to entire block movement. In addition, block movement requires all the actors in the sub network to be aware of where and how far to move, which introduces extra message in initiates the recovery process with the neighbors Of the failed nodes. Closest proximity to failed actor: In order to minimize the movement overhead, the nearest actor to will be favored. It is possible that among the neighbors of node, two or more actors have identical node shortest path to it. Calculate the expected time it will take to reach the new location. In addition before moving to new location, the BC will inform all its neighbors about its movement and the time it will take to reach to the new location by sending. The BC will then broadcast a "RECOVERED" message upon arriving at the destination. The dependent neighbors (children) of the BC keep waiting until they receive the "RECOVERED" message indicating the restoration process has been completed such scenario.

IV. CONCLUSION

In this paper, our survey shows efficient Cost-Aware Secure Routing (CASER) protocol for WSNs to balance the energy consumption and increase network lifetime. Our analysis and simulation to showing that we can increase the lifetime of wireless sensor network and Distributed Actor Recovery Algorithm (DARA)and Partition Detection and Recovery Algorithm (PADRA)require to maintain a list of their multi-hop neighbors and determine the scope of the recovery by checking whether the failed nodes. It also provide the assurances to packet delivery. CASER has flexibility to support multiple routing. The main objective to have a network which gives assurance of packet delivery and give the node time to regain its so that it will be able to carry further load Packets on the network..

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